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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,803	12/01/2003	Tetsuya Oda	36856.1162	5551

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EXAMINER	
COLEMAN, WILLIAM D	
ART UNIT	**PAPER NUMBER**
2823	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H A

Office Action Summary	Application No.	Applicant(s)	
	10/724,803	ODA ET AL.	
	Examiner	Art Unit	
	W. David Coleman	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-9 and 11-20* is/are rejected.

7)☒ Claim(s) *2,4 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 5-9 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al., U.S. Patent Application Publication No. U.S. 2002/0017864 A1 in view of Deeken et al., U.S. Patent 6,114,404.

Watanabe discloses a semiconductor process substantially as claimed. See **FIGS. 1-32** where Watanabe teaches the following limitations.

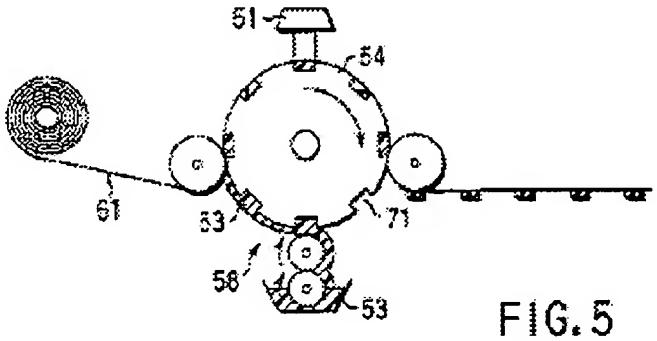


FIG. 5

FIG. 6

3. Pertaining to claim 1, Watanabe teaches a method of forming a thick-film wiring on a substrate comprising:

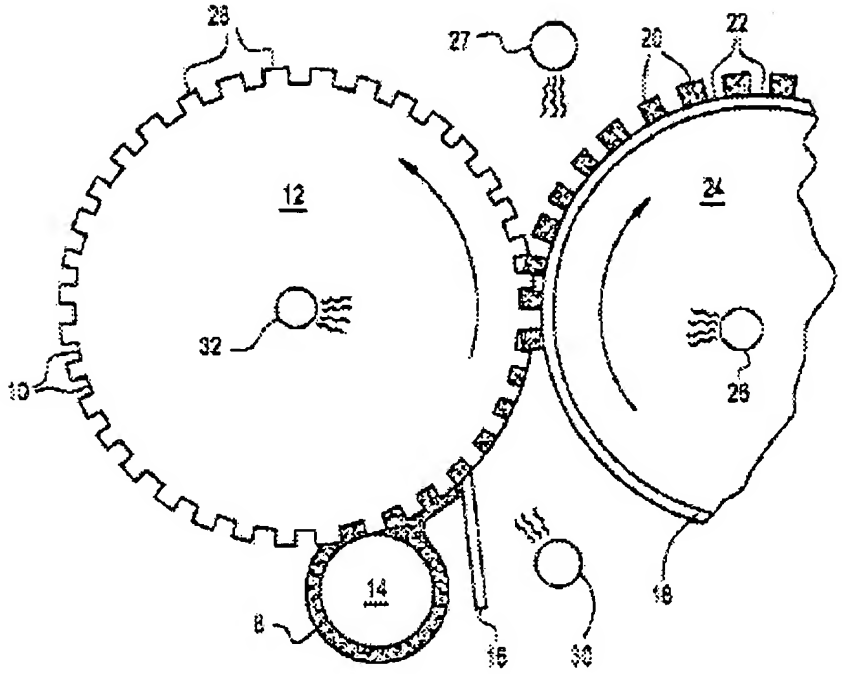
a first step of filling a photosensitive-electro-conductive paste **53** into a pattern groove **71** formed on the surface of a plate **54**, the pattern groove corresponding to a desired thick-film wiring pattern;

a second step of irradiating **51** the photo-sensitive electro-conductive paste filled in the pattern groove with light rays from the front of the plate to cause the photosensitive-electro-conductive paste to harden until the peripheral surface of the electro-conductive paste has a predetermined hardness;

a third step of transferring the photosensitive electro-conductive paste hardened in the plate directly to the substrate or via an intermediate piece to the substrate; and

a fourth step of firing the photosensitive-electro-conductive paste, whereby the thick-film wiring is formed on the substrate (see paragraph [0242]). However, Watanabe fails to disclose a light-transmissive plate and the second step of irradiating the photosensitive electro-conductive paste filled in the pattern groove with light rays from the front and back sides of the plate.

Deeken teaches a light transmissive plate and irradiating both the front and back sides of the plate.



In view of Deeken, it would have been obvious to one of ordinary skill in the art to incorporate the limitations of irradiating the front and back sides of the plate in the Watanabe semiconductor process because the transfer layer is cured by exposure to radiation source 26, 27, 30 and 32 (column 17, lines 1-5)

4. Pertaining to claim 3, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 2, wherein in the second step, light having a wavelength of at least about 350 nm irradiates the photosensitive-electro-conductive paste from the front and back sides of the plate (the Examiner takes the position that the UV light disclosed by Watanabe falls within the claimed wavelength see paragraph [0211]).

5. Pertaining to claim 5, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein the intermediate piece is made of a light-transmissive material;

the second step includes irradiating light from the back side of the plate and from the backside of the intermediate piece while the intermediate piece and the plate overlap each other; and

the third step includes transferring the photo-sensitive electro-conductive paste hardened in the plate to the intermediate piece, and then, transferring the photosensitive-electro-conductive paste from the intermediate piece to the substrate.

6. Pertaining to claim 6, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein, in the second step, the quantity of light irradiated from the front side of the plate is larger than the quantity of light irradiated from the back side of the plate.

7. Pertaining to claim 7, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein the plate is a flexible plate made of resin, and the resin plate is bonded to a support which is light-transmissive and non-flexible.

8. Pertaining to claim 8, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein a release agent is coated on an inner surface of the pattern groove of the plate.

9. Pertaining to claim 9, Watanabe in view Deeken teaches a method of producing a laminated electronic component comprising the steps of: preparing a substrate made of a green sheet; transferring photosensitive-electro-conductive paste onto the substrate directly or via an intermediate piece;

repeating the steps of preparing and transferring to form a laminate of plural substrates having the photo sensitive electro-conductive paste transferred thereto; and firing the laminate;

wherein the photosensitive-electro-conductive paste is formed by the method of forming a thick-film wiring defined in Claim 1.

10. Pertaining to claim 11, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 9, wherein the intermediate piece is made of a light transmitting material;

the second step includes irradiating light from the back side of the plate and from the back side of the intermediate piece while the intermediate piece and the plate overlap each other; and

the third step includes transferring the photo sensitive electro-conductive paste hardened in the plate to the intermediate piece, and then, transferring the photosensitive-electro-conductive paste from the intermediate piece to the substrate.

11. Pertaining to claim 12, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 9, wherein, in the second step, the quantity of light irradiated from the front side of the plate is larger than the quantity of light irradiated from the back side of the plate.

12. Pertaining to claim 13, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 9, wherein the plate is a flexible plate made of resin, and the resin plate is bonded to a support which is light-transmitting and non-flexible.

13. Pertaining to claim 14, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 9, wherein a release agent is coated on an inner surface of the pattern groove of the plate.

14. Pertaining to claim 15, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein the plate is an intaglio plate.

15. Pertaining to claim 16, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein a surface of the plate is coated with a release agent.

16. Pertaining to claim 17, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 16, wherein the release agent is a fluororesin.

17. Pertaining to claim 18, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein a cross-sectional shape of the pattern groove is a trapezoid having side walls with a predetermined tapering-angle.

18. Pertaining to claim 19, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein a surface of the substrate is coated with an adhesive.

Pertaining to claim 20, Watanabe in view of Deeken teaches a method of forming a thick-film wiring according to Claim 1, wherein the plate is made of glass.

Objections

19. Claims 2, 4 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. David Coleman
Primary Examiner
Art Unit 2823

WDC